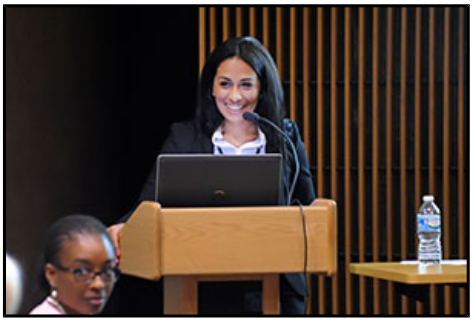
Scholars Connect Program marks second year

By Eddy Ball

NIEHS and NTP scientists gathered April 21 to recognize the accomplishments of a special group of young interns. Attendees heard talks by six young women who made up the second cohort of participants in the NIEHS Scholars Connect Program (NSCP), as they reported on yearlong projects mentored by lead researchers in NIEHS and NTP labs (see text box).



Understandably, the scholars may have been nervous, but, like Burks, they were comfortable thinking on their feet and even engaging in banter with the audience. (Photo courtesy of Steve McCaw)

The program opened with an introduction by Ericka Reid, Ph.D., director of the NIEHS Office of Science Education and Diversity (OSED), which oversees the NSCP. "It [NSCP] is a concerted effort to connect with colleges and universities in the Triangle," she said, "to take further steps toward increasing and supporting the number of students from under-represented groups in the sciences and, specifically, the environmental health sciences."

The talks, by students from St. Augustine's University (SAU), North Carolina Central University (NCCU), North Carolina State University (NCSU), and the University of North Carolina at Chapel Hill (UNC), reflected the range of research underway at NIEHS and NTP, as well as the achievements of the interns and the quality of their intensive training and career development over the past academic year.

Santos introduced the speakers and monitored questions from the audience. "I'm very proud for you, guys," she told the interns. (Photo courtesy of Steve McCaw)

Linked Video

Watch this year's Scholars Connect interns at work and learn more about the program (03:23)

Presentations were moderated by session chair Janine Santos, Ph.D., a staff scientist in the NIEHS Mammalian Genome Group, who was introduced by NSCP Program Coordinator Cathy Jamison.

Starting almost from scratch

This year's projects were ambitious and almost uniformly took the young scientists far beyond their comfort zones and areas of previous academic preparation. Their academic training ranged from chemistry and public health to nutrition and environmental health, with only one participant bringing advanced training as a biology major to her internship at NIEHS.

The interns' research ranged from novel basic-science approaches to better understand major public health concerns, to a bioinformatics survey of an animal model used in NTP gold-standard two-year rodent assays. Each of the projects was part of a longer-range effort to address such issues as fibroids, asthma, targeted chemotherapy, diseases of the gastrointestinal tract, neuropathology, and evaluation of the toxicology and carcinogenicity of environmental chemicals.

Thanks to their extensive training and practice during their time at NIEHS, the presenters were poised and well prepared for questions about their study designs, methodology, and findings. Each articulated the big-picture public health significance of her research, as well as its limitations and its place in her group's long-range plans. Along with their many successes, the interns spoke candidly of false starts and failures as important parts of their learning experience.

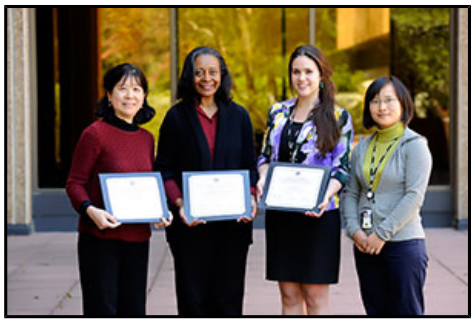
The interns also demonstrated their grasp of the value of team science involving collaborations across the Institute and with external colleagues. Several of the projects took advantage of NIEHS core resources, such as ones offered by the Protein Expression Core and the Microarray Core.

Moving forward

Whether this year's NSCP participants ultimately choose to pursue a career in the environmental sciences or not, they all expressed a deep appreciation of the training experience and the close relationships they developed with the mentors they worked alongside over the past year.

As she presented certificates to the scholars and their mentors, Reid expressed her own appreciation for the experience. "It has been an absolute pleasure," she said.

Meanwhile, Reid, Jamison, and K-12 Science Education and Outreach Coordinator Huei-Chen Lao are looking forward to the next academic year, as the program recruits participants for the upcoming Scholars Connect Boot Camp (see story) that will begin the program's third year.



Several of the scholars took advantage of a lovely spring day for photos on the patio. Shown, left to right, are Yu, Dixon, Blatchford, and research fellow Xiaohua Gao, M.D., Ph.D. (Photo courtesy of Steve McCaw)

Reid congratulated members of the second NSCP class, as she looked forward to greeting a new group in June. (Photo courtesy of Steve McCaw)

Oyelowo joined colleagues, from left, Harry, Orihuela, and biologist Christopher McPherson, Ph.D. (Photo courtesy of Steve McCaw)

Burks and Dunigan took a moment to show off their certificates. (Photo courtesy of Steve McCaw)

Bushel was one of the many mentors on hand to support their interns. He also helped Burks answer a question about future directions from one of the scientists in the audience. (Photo courtesy of Steve McCaw)

In addition to her lab family, Oyelowo's proud parents also joined her following the presentations. (Photo courtesy of Steve McCaw)

Scholar presentations

- **Kate Blatchford (NCSU)** - "The Contribution of Membrane Associated GPR-30/GPER in Nongenomic Signaling by Bisphenol A (BPA)." Mentored by NTP Molecular Pathogenesis Group leader Darlene Dixon, D.V.M., Ph.D., and biologist Linda Yu, M.D., Blatchford investigated the role of low-level exposure to an endocrine-disrupting compound in inducing cell proliferation and growth of uterine fibroids.
- **Mia Burks (SAU)** - "Genomic Regions in Mice Reveal a Molecular Landscape to Investigate." Working with Biostatistics Branch head Clarice Weinberg, Ph.D., and staff scientist Pierre Bushel, Ph.D., Burks explored the effects of gene interaction and polymorphism in promoting susceptibility to spontaneous hepatocellular carcinoma in a rodent model used in NTP two-year assays.
- **Brittany Dunigan (SAU)** - "Knock Down of DNA Polymerase B in Xrccl $^{+/+}$ and Xrcc1 $^{-/-}$ Mouse Fibroblast Cells." Mentored by DNA Repair and Nucleic Acid Enzymology Group leader Samuel Wilson, M.D., and staff scientist Julie Horton, Ph.D., Dunigan studied proteins involved in base excision repair of DNA damage in cancer cells for potential intervention by targeted chemotherapy.
- **Ashley Kang (NCSU)** - "Role of Sirt1 in Intestinal Epithelial Biology." Kang worked with Metabolism, Genes, and Environment Group leader Xiaoling Li, Ph.D., and postdoctoral fellow Mallikarjuna Metukuri, Ph.D., on a study of the influence of the regulatory protein Sirt1 on nutrient absorption and health in the intestine, with possible implications for understanding inflammatory bowel disease, colon cancer, and Type-2 diabetes.
- **Melissa Kerr (NCCU)** - "Inter-*a*-Inhibitor Heavy Chains: Domain-based Functional Effects on Immune Cell Activation and Migration." Working with Matrix Biology Group leader Stavros Garantziotis, M.D., and biologist Vandy Stober, Kerr explored the role of a protein heavy chain in airway inflammation and remodeling that contributes to respiratory diseases, including asthma.
- **Toyosi Oyelowo (UNC)** - "Inhibition of Microglial Polarization by Inorganic Arsenic." Mentored by NTP Neurotoxicology Group leader Jean Harry, Ph.D., and postdoctoral fellow Ruben Orihuela, Ph.D., Oyelowo studied mechanisms of arsenic immune suppression and inhibition of the removal of bacteria from the central nervous system, which are linked to progressive neurodegeneration.

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